

AMENDMENTS TO THE CLAIMS

Please amend the claims as set forth below.

1. (Currently Amended) A method for ~~managing information about user equipments (UEs) in a mobile communication system for providing a~~ MBMS (Multimedia Broadcast/Multicast Service) services to ~~the User Equipments (UEs), the~~ in a mobile communication system including a Node B, a plurality of the UEs capable of communicating with the Node B in a cell occupied by the Node B, and a radio network controller (RNC) for controlling communication of the Node B, a serving GPRS (General Packet Radio Service) support node (SGSN) for managing the RNC, and the UEs to provide a packet switched (PS) service and a circuit switched (CS) service to the UEs, the method comprising the steps of:
transmitting MBMS service-related information of a UE that is in a Radio Resource Control (RRC) connected mode and a Packet Mobility Management-Idle (PMM-Idle) state mode after joining at least one MBMS service, from the UE to the RNC; and
receiving MBMS service by the UE according to the MBMS service-related information to enable the UE to inform the RNC that the user has joined at least one MBMS service, storing the MBMS service-related information in a first service context for the MBMS service held in the RNC, together with managing information about the UE.
2. (Canceled)
3. (Currently Amended) The method of claim 1, wherein the MBMS service-related information includes an MBMS Joined indication at least one service identity (ID) for the at least one MBMS service that the user of the UE in the PMM Idle state UE and the RRC connected mode has joined at least one MBMS service.
4. (Original) The method of claim 1, wherein the MBMS service-related information includes a service activation indicator for indicating that the UE has joined a certain MBMS service.
5. (Canceled)
6. (Original) The method of claim 1, further comprising the step of authenticating, by the RNC, the UE, in between the RNC and the SGSN.

7 – 9. (Canceled)

10. (Original) The method of claim 1, wherein the step transmitting the MBMS service-related information comprises the step of transmitting an RRC (Radio Resource Control) connection setup message containing a service identity (ID) for the at least one MBMS service that the UE has joined, from the UE to the RNC, during an RRC connection setup procedure between the UE and the RNC.

11. (Currently Amended) The method of claim 10, further comprising the steps of: transmitting, by the RNC, a validate request message containing an ID of the UE to a the SGSN serving node managing the RNC; and receiving from the SGSN serving node a validate response message indicating whether the UE has been validated.

12. (Original) The method of claim 11, wherein the validate request message further includes at least one of the service ID for the at least one MBMS service.

13 –14. (Canceled)

15. (Original) The method of claim 1, wherein the step of transmitting the MBMS service-related information comprises the step of transmitting a service request message containing a service identity (ID) for the at least one MBMS service that the UE has joined, from the UE to the RNC, after the UE sets up an RRC connection for one of the CS service and the PS service with the RNC.

16. (Currently Amended) The method of claim 15, further comprising the steps of: transmitting, by the RNC, a validate request message containing an ID of the UE to a the SGSN serving node managing the RNC; and receiving from the SGSN serving node a validate response message indicating whether the UE has been validated.

17. (Original) The method of claim 16, wherein the validate request message further includes at least one of the service ID of the MBMS service.

18-19. (Canceled)

20. (Currently Amended) A method for providing MBMS (Multimedia Broadcast/Multicast Service) services in a mobile communication system, the method comprising the steps of:~~The method of claim 1, wherein the step of transmitting the MBMS service-related information comprises the steps of:~~

~~receiving, by a Radio Network Controller (RNC), transmitting an RRC connection setup message containing an MBMS joined indication that a PMM Idle state User Equipment (UE) in a Radio Resource Control (RRC) connected mode service activation indicator indicating existence of a particular MBMS service that the UE has joined at least one MBMS service, from the UE to the RNC, during an RRC connection setup procedure between the UE and the RNC;~~

~~transmitting, by the RNC, an MBMS a-service IDentity (ID) list request message containing an IDentity (ID) of the UE to a serving node a serving GPRS (General Packet Radio Service) support node (SGSN) managing the RNC; and~~

~~receiving, by the RNC, an MBMS a-service ID list response message containing at least one service ID indicating at least one MBMS service that the UE has joined, from the serving node SGSN; and~~

~~providing MBMS service from the RNC to the UE according to the MBMS service ID response message.~~

21. (Canceled)

22. (Currently Amended) The method of claim 20, further comprising the step of searching, by the ~~serving node~~SGSN, for the at least one service ID for the at least one MBMS service that the UE has joined, using the ID of the UE.

23. (Canceled)

24. (Currently Amended) The method of claim ~~20~~21, ~~further comprising wherein the step of transmitting the MBMS service-related information comprises the steps of:~~

~~transmitting a service request message containing an MBMS service activation indicator indicating existence of a particular MBMS service that the UE has joined, from the UE to the RNC, after an RRC (Radio Resource Control) connection setup between the UE and the RNC is completed;~~

transmitting, by the RNC, a service list request message containing an ID of the UE to a the SGSN serving node managing the RNC; and

receiving, by the RNC, a service list response message containing at least one service ID indicating the at least one MBMS service that the UE has joined, from the SGSN serving node;

25. (Original) The method of claim 24, wherein the service list request message further includes an ID of the RNC.

26. (Currently Amended) The method of claim 24, further comprising the step of searching, by the SGSN serving node, for the at least one service ID for the at least one MBMS service that the UE has joined, using the ID of the UE.

27. (Canceled)

28. (Currently Amended) The method of claim 20, further comprising wherein the step of storing the MBMS service related information comprises the steps of:
searching for the a first service context for the at least one MBMS service that the UE has joined, and generating the first service context, if the first service context does not exist; and
adding the information about the UE to the first service context, if an identity (ID) of the UE is not included in the first service context.

29. (Canceled)

30. (Currently Amended) A method for ~~managing information about user equipments (UEs) in a mobile communication system for~~ providing an MBMS (Multimedia Broadcast/Multicast Service) services to the User Equipments (UEs), ~~thein a system including a Node B, a plurality of the UEs capable of communicating with the Node B in a cell occupied by the Node B, a radio network controller (RNC) for controlling communication of the Node B and the UEs to provide one of a packet switched (PS) service and a circuit switched (CS) service to the UEs, and a~~ serving GPRS (General Packet Radio Service) support node (SGSN) serving node for managing the RNC, the method comprising the steps of:

transmitting MBMS service-related information of a UE that is in a Packet Mobility Management-Idle (PMM-Idle) mode after joining at least one MBMS service, from the UE to the SGSN~~serving node~~;

linking the MBMS service-related information with information about the UE; and
storing the MBMS service-related information linked to the information about the UE in a first service context for the at least one MBMS service in the SGSN~~serving node~~.

31. (Original) The method of claim 30, wherein the step of storing the MBMS service-related information comprises the step of adding information about the UE that transmitted the MBMS service-related information, to the first service context.

32. (Original) The method of claim 30, wherein the MBMS service-related information includes at least one service identity (ID) for the at least one MBMS service that the UE has joined.

33. (Original) The method of claim 30, wherein the MBMS service-related information includes a service activation indicator for indicating that the UE has joined a certain MBMS service.

34. (Canceled)

35. (Original) The method of claim 30, wherein the information about the UE includes at least one of an ID of the UE and state information of the UE.

36-37. (Canceled)

38. (Currently Amended) The method of claim 30, wherein the step of transmitting the MBMS service-related information comprises the steps of:

transmitting an RRC (Radio Resource Control) connection setup message containing a service ID for the at least one MBMS service that the UE has joined, from the UE to the RNC, during an RRC connection setup procedure between the UE and the RNC;

transmitting, by the RNC, a validate request message containing an ID of the UE to the SGSN~~serving node~~; and

receiving from the SGSN~~serving node~~ a validate response message indicating whether the UE has been validated.

39. (Original) The method of claim 38, wherein the validate request message further includes the service ID of the MBMS.

40-41. (Canceled)

42. (Currently Amended) The method of claim 30, wherein the step of transmitting the MBMS service-related information comprises the step of transmitting a service request message containing a service identity (ID) for the at least one MBMS service that the UE has joined, from the UE to the SGSN~~servi~~ng node, after the UE sets up an RRC (Radio Resource Control) connection for ~~one~~one of the CS service and the PS service with the RNC.

43. (Currently Amended) The method of claim 42, further comprising the steps of: transmitting, by the SGSN~~servi~~ng node, a linking request message containing the service ID to the RNC;

adding, by the RNC, the information about the UE to a second service context for the service ID in response to the linking request message; and

transmitting, by the RNC, a linking response message corresponding to the linking request message to the SGSN~~servi~~ng node.

44. (Canceled)

45. (Currently Amended) The method of claim 30, wherein the step of transmitting the MBMS service-related information comprises the steps of:

transmitting an RRC (Radio Resource Control) connection setup message containing an MBMS service activation indicator indicating existence of a particular MBMS service that the UE has joined, from the UE to the RNC, during an RRC connection setup procedure between the UE and the RNC;

transmitting, by the RNC, a service list request message containing an identity (ID) of the UE to the SGSN~~servi~~ng node; and

receiving, by the RNC, a service list response message containing at least one service ID indicating the at least one MBMS service that the UE has joined, from the SGSN~~servi~~ng node.

46. (Original) The method of claim 45, wherein the service list request message further includes an ID of the RNC.

47-48. (Canceled)

49. (Currently Amended) The method of claim 30, wherein the step of transmitting the MBMS service-related information comprises the steps of:

transmitting a service request message containing an MBMS service activation indicator indicating existence of a particular MBMS service that the UE has joined, from the UE to the ~~SGSN~~serving node, after an RRC (Radio Resource Control) connection setup between the UE and the RNC is completed; and

searching, by the ~~SGSN~~serving node, for a service identity (ID) for the at least one MBMS service that the UE has joined, using an ID of the UE.

50. (Original) The method of claim 30, wherein the step of transmitting the MBMS service-related information comprises the steps of:

searching for the first service context for the at least one MBMS service that the UE has joined, and generating the first service context, if the first service context does not exist; and adding the information about the UE to the first service context, if the ID of the UE is not included in the first service context.

51. (Canceled)